

Date: Tue, 12 Jul 94 04:30:36 PDT
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>
Errors-To: Ham-Space-Errors@UCSD.Edu
Reply-To: Ham-Space@UCSD.Edu
Precedence: Bulk
Subject: Ham-Space Digest V94 #184
To: Ham-Space

Ham-Space Digest Tue, 12 Jul 94 Volume 94 : Issue 184

Today's Topics:

GARC Shuttle Communications Retransmissions
Internet Offers Space Station Petition
Portable 9600 buad PacSat Station Design
Satellites seen from Earth
Sat Logging

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 11 Jul 1994 11:13:35 GMT
From: ihnp4.ucsd.edu!swrinde!gatech!newsxfer.itd.umich.edu!jobone!ukma!
newsfeed.gsfc.nasa.gov!trmmstocker.gsfc.nasa.gov!stocker@network.ucsd.edu
Subject: GARC Shuttle Communications Retransmissions
To: ham-space@ucsd.edu

INTERESTED IN STS-65 SHUTTLE TRANSMISSIONS

The Goddard Amateur Radio Club (GARC) invites interested people to tune
in to
STS-65 shuttle ground communications transmissions. As a public service
to the
Amateur radio community, the GARC retransmits space shuttle air-to-ground
communications. During the STS-65 mission which also carries a Shuttle
Amateur Radio Experiment (SAREX), Amateur radio operators, shortwave
listeners,
and individuals with scanners can listen to these communications on the
following HF (single sideband) and VHF (FM) frequencies:

3.860 MHz (lower sideband)
7.186 MHz (lower sideband)
14.295 MHz (upper sideband)
21.395 MHz (upper sideband)
28.650 MHz (upper sideband)
147.45 MHz (FM) in local Washington D.C. metro area

As previous posts have indicated STS-65 also carries SAREX.

Packet Radio

Callsign: W5RRR-1

Freqs: All operations in split mode. Do NOT transmit
on the downlink frequency.

Voice Freqs: Downlink: 145.55 MHz (worldwide)
Uplinks: 144.91,144.95,144.97,144.99 MHz

Crew will not favor any specific frequency

Packet Freq: Downlink: 145.55 MHz
Uplink: 144.49 MHz

Info: Goddard Amateur Radio Club, WA3NAN

* Erich Franz Stocker *
* N3OXM *
* stocker@spsosun.gsfc.nasa.gov *
* *
* My ideas are my own and do not represent *
* the opinions of the federal government, *
* NASA or Goddard Space Flight Center. *

Date: 11 Jul 1994 18:43:40 GMT
From: ihnp4.ucsd.edu!usc!nic-nac.CSU.net!news.Cerritos.edu!news.Arizona.EDU!bozo!
ssa@network.ucsd.edu
Subject: Internet Offers Space Station Petition
To: ham-space@ucsd.edu

Dear Colleague:

Student Space Action would like to inform you of a way in which you can directly voice your support for manned space exploration. As you read this, your space program is in danger of becoming extinct. Congress is once again attempting to eliminate space station funding. Cancellation of the space station could mean the phase-out of space exploration and eventual termination of aerospace industries and job opportunities. The resulting impact on the nation's economy, technology and educational system would be disastrous.

You can tell your congressmen exactly how much you support the space station and the manned space initiative by signing the Student Space Action's Interactive Online Petition. Simply follow these steps:

```
telnet seds.lpl.arizona.edu
login> space
```

Now answer the questions to the best of your ability (read the directions accompanying the petition-- use <tab> to enter answer; <enter> to toggle yes/no; up/down arrows to go backwards and forwards through questions. Caution: if floating characters appear on your screen--ignore--it's probably just an emulation problem. Your petition will still be signed.

After you submit the petition, you will receive information on your congressmen and senators so you can contact them further by phone or mail if you desire.

The petition is also accessible by NCSA Mosaic. Simply go to the following URL and follow the directions:

URL: <http://seds.lpl.arizona.edu/ssa/petition.html>

Answer the questions and submit the petition and you will receive the same information as the telnet version. You will also have the option of linking to the space station home page where you can read up-to-date information on the space station, including issues of "Space Station This Week."

Please forward this message to anyone you may feel would want to be a part of this effort--everyone!

If you believe the space program is a vital part of our country's future, both in economic growth and technological advancement, then sign the Student Space Action's Interactive Petition.

If you believe that NASA should remain as an engine for continued manned

space exploration, then tell everyone you know to sign this petition.

If you believe that our government, by supporting an initiative like the space station, is making an investment in the future generation of this great nation, then send your message to Washington by signing the Student Space Action Interactive Petition.

SPACE STATION: IT'S ABOUT LIFE ON EARTH!!

Your voice does count! And it WILL make a difference!

Sincerely,

--

Student Space Action

"Don't Take Away Our Frontier!"

For general responses: ssa@seds.lpl.arizona.edu

For technical or policy inquiries: chrisl@bozo.lpl.arizona.edu
or gamageb@db.erau.edu

We will keep reaching for the stars....

Date: 11 Jul 1994 21:00:14 GMT

From: ihnp4.ucsd.edu!swrinde!gatech!newsxfer.itd.umich.edu!zip.eecs.umich.edu!
yeshua.marcam.com!charnel.ecst.csuchico.edu!psgrain!news.tek.com!gv-
gate.gvg.tek.com!gvgadg!randyh@network.ucsd.edu

Subject: Portable 9600 baud PacSat Station Design

To: ham-space@ucsd.edu

I have been thinking about what it would take to put together a portable 9600 baud satellite station? After all, the satellite is a cube about 9" on a side, can we put together something about that size?

My idea is to have a radio, tnc, antenna, and laptop computer that could be powered from a battery and used anywhere. I thought I would pose a few questions to the net to gather up some suggestions from those with 9600 baud pacsat experience. I don't know if I will really put this together, but it is interesting to think about. I am posting this to both bbs@amsat.org and rec.radio.amateur.space groups.

RADIO:

First thought is to use one of the newer dual banders that come ready for 9600 packet. These have the new jack on the back that connects the TNC to the proper stages within the radio to support 9600 baud. One of the problems that I see with these radios is the IF bandwidth to allow for Doppler shift of +/- apx 10KHz. Most of these radios tune in 5KHz steps.

So do we have a problem with tuning needed to track Doppler with this style of radio? Also, the cost of these radios is rather high.

Another idea is to use an older 25 watt 2 meter radio for the uplink. This radio would need to be modified to drive the vco from the TNC. These are pretty cheap. For the downlink, could a simple scanner work? Bruce, N4USH, posted a message about using a Radio Shack Pro 2006 scanner to receive downlinks. I have modified a scanner for APT fax use by changing out the IF filter with a filter of wider bandwidth. Bruce used the search mode of the scanner to change to a new frequency to follow the sat's Doppler change. The system would also probably require a preamp to help out the receiver. Comments on using this setup for the radios?

TNC:

There seems to be many 9600 baud G3RUH compatible TNCs on the market. I have seen the ads for AEA, DRSI, and others. The DRSI looks interesting as it draws only 40mA. Also, using a TNC that supports normal 1200 baud allows connection to common PBBS and users. Are any of these TNCs better or easier to use than others?

ANTENNA:

Couple of ideas here. A couple of quarter wave ground planes could be used. I see that several of the antenna manufacturers sell 144/440 4/5 element beams using a common boom. MFJ sells one for around \$40. One of these could be mounted to a camera tripod and hand tracked during the pass. The beamwidth of these short beams is wide, which helps to simplify tracking of the satellite. The antenna needs to be easy to assemble and disassemble to allow for easy transport.

COMPUTER:

A portable of probably at least 386SX power with hard disk would be needed to run PB, PG and a tracking program. What is the minimum computer needed? The tracking program could generate an AZ/EL list before the pass and either print a list (if printer available) or the user could write these numbers down. Then during to pass the operator hand tracks the satellite and lets PB or PG run. Being more of a Mac person, can PB & PG run under Soft PC on a Mac portable?

BATTERY:

A gel cell could be used to power everything. Probably something in the 12 AH range would be needed. A solar panel could be used to charge the battery between passes. A power cord to connect the system into a carUs cigarette lighter would also be useful.

So, it seems that it is possible to build a portable 9600 baud satellite station that would fit inside a camera bag or brief case. Has anyone put together such a package? Any other comments about this portable idea?

I'll compile a list of all the responses that I receive. If there is interest I'll post the responses.

Thanks,

Randy
WA2AGE

wa2age@amsat.org
randyh@gvgadg.gvg.tek.com

Date: Mon, 11 Jul 1994 19:14:14 -0400
From: ihnp4.ucsd.edu!usc!math.ohio-state.edu!howland.reston.ans.net!
europa.eng.gtefsd.com!newsxfer.itd.umich.edu!jobone!ukma!newsfeed.gsfc.nasa.gov!
lstuart.gsfc.nasa.gov!user@network.ucsd.edu
Subject: Satellites seen from Earth
To: ham-space@ucsd.edu

There are numerous sets of two-line elements available through FTP; also freeware and shareware for computing viewing times and look angles. Suggest you surf through some of Ted Kelso's articles posted here, and to sci.space.news, sci.space.astro, and sci.space.science.

In article <stjacque.58.0@nbnet.nb.ca>, stjacque@nbnet.nb.ca (Ecole St-Jacques) wrote:

> Hi,
> I am an amateur astronomer and often wondered if it was possible to identify
> the satellites crossing the night sky. If anyone knows, I guess you guys
> should know.
> So, would anyone be so kind and send me the coordinates, dates, times...
> I am at long.68*26, lat.+47*28.
> I will appreciate very much.
> Thanks.
> Rachel

Date: Mon, 11 Jul 94 07:14:03 -0500
From: news.delphi.com!usenet@uunet.uu.net
Subject: Sat Logging
To: ham-space@ucsd.edu

I usually just log the frequency as "A0-10/B" or "F0-20/JA" and then keep the mode as it would normally be (SSB, FM, etc.). This makes it nice for computer logging, as I can search the frequency field for a "/" and find all my satel-

lite contacts easily.

Date: Mon, 11 Jul 1994 16:16:56 GMT
From: hookup!europa.eng.gtefsd.com!MathWorks.Com!yeshua.marcam.com!
charnel.ecst.csuchico.edu!csusac.ecs.csus.edu!csus.edu!netcom.com!netcomsv!
telesoft!garym@ames.arpa
To: ham-space@ucsd.edu

References <STS-65.94189.746@alsys.com>, <STS-65.94190.625@alsys.com>,
<STS-65.94191.629@alsys.com>el.
Reply-To : elements-request@alsys.com
Subject : STS-65 Element Set (94192.570)

STS-65
1 23173U 94105A 94192.57067346 .00068294 00000-0 20930-3 0 74
2 23173 28.4658 346.2089 0002270 332.1014 27.9488 15.90479719 479

Satellite: STS-65
Catalog number: 23173
Epoch time: 94192.57067346 = (11 JUL 94 13:41:46.18 UTC)
Element set: 007
Inclination: 28.4658 deg
RA of node: 346.2089 deg Space Shuttle Flight STS-65
Eccentricity: .0002270 Keplerian element set JSC-007
Arg of perigee: 332.1014 deg from NASA flight Day 4 vector
Mean anomaly: 27.9488 deg
Mean motion: 15.90479719 rev/day G. L. Carman
Decay rate: 6.8294e-04 rev/day^2 NASA Johnson Space Center
Epoch rev: 47

(for Shuttle Elements subscription info, email: listserv@alsys.com)

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San Diego, CA, USA Phone: +1 619-457-2700 x128
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End of Ham-Space Digest V94 #184
